

# API SWING CHECK VALVE

## 1. USE:

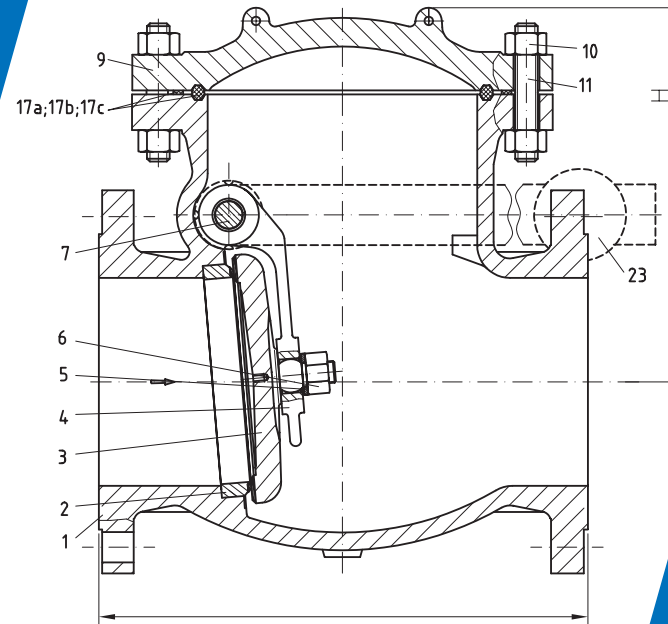
Extraction, transportation and distribution systems in:  
water, steam, gas and oil industry.

## 2. SERVICE CONDITIONS:

- 2.1. Ambient temperature: from  $-35^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$   
( $-22^{\circ}\text{F}$  to  $+104^{\circ}\text{F}$ )
- 2.2. Service temperature: from  $-59^{\circ}\text{C}$  to  $+595^{\circ}\text{C}$   
( $-75^{\circ}\text{F}$  to  $+1100^{\circ}\text{F}$ )

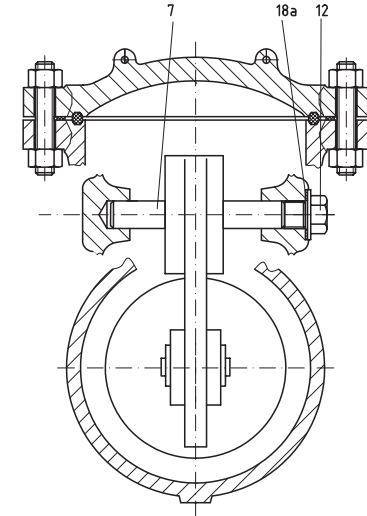
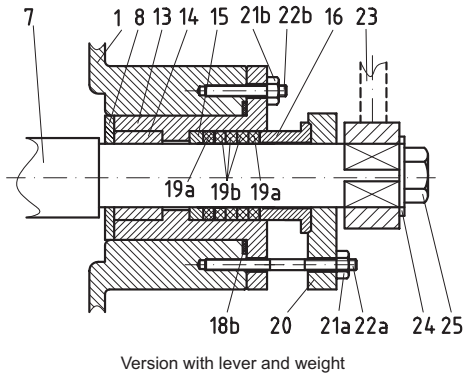
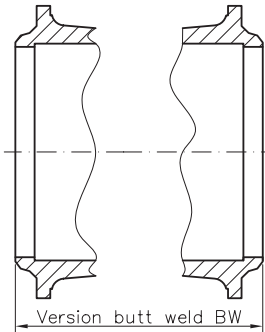
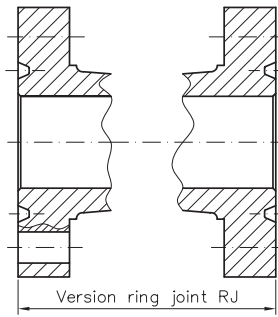
## 3. TECHNICAL CHARACTERISTICS:

- 3.1. Design standard: API SPEC. 6D
- 3.2. End-to-end dimensions:  
ASME B16.10 for NPS 1" ÷ 36",  
manufacturer's standard for NPS 38" ÷ 42".
- 3.3. Connection flanges:  
ASME B16.5 for NPS 1" ÷ 24",  
MSS SP 44 or ASME B16.47 for NPS 22" ÷ 42".
- 3.4. Weld ends: ASME B16.25 or ASME B31.1
- 3.5. Temperature pressure rating: ASME B16.34
- 3.6. Testing: API 598 or API SPEC. 6D
- 3.7. Operation: free stroke  
with counterweight



*The Science Of Detail*

API SWING CHECK VALVE



### SWING CHECK VALVE CLASS 150

|            | NPS | inch | 1 1/2" | 2"     | 2 1/2" | 3"     | 4"      | 5"      | 6"      | 8"      | 10"     | 12"     | 14"     | 16"     | 18"     | 20"     | 22"     | 24"     | 26"  | 28"     | 30"     | 32"     | 36"     | 40"     | 42"     |      |
|------------|-----|------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------|---------|---------|---------|---------|---------|---------|------|
|            |     |      | DN     | mm     | 40     | 50     | 65      | 80      | 100     | 125     | 150     | 200     | 250     | 300     | 350     | 400     | 450     | 500     | 550  | 600     | 650     | 700     | 750     | 800     | 900     | 1000 |
| Overall    | RF  | inch | 6 1/2" | 8"     | 8 1/2" | 9 1/2" | 11 1/2" | 13"     | 14"     | 19 1/2" | 24 1/2" | 27 1/2" | 31"     | 34"     | 38 1/2" | 38 1/2" | 42"     | 51"     | 51"  | 57"     | 60"     | 69"     | 77"     | 80 1/4" | 80 1/4" |      |
|            | BW  | mm   | 165    | 203    | 216    | 241    | 292     | 330     | 356     | 495     | 622     | 699     | 787     | 864     | 978     | 978     | 1067    | 1295    | 1295 | 1448    | 1524    | 1753    | 1956    | 2038    | 2038    |      |
|            | RJ  | inch | 7"     | 8 1/2" | 9"     | 10"    | 12"     | 13 1/2" | 14 1/2" | 20"     | 25"     | 28"     | 31 1/2" | 34 1/2" | 39"     | 39"     | 42 1/2" | 51 1/2" |      |         |         |         |         |         |         |      |
|            |     | mm   | 178    | 216    | 229    | 254    | 305     | 343     | 368     | 508     | 635     | 711     | 800     | 876     | 991     | 991     | 1080    | 1308    |      |         |         |         |         |         |         |      |
|            | H   | inch | 4 1/4" | 6"     | 6"     | 7 1/2" | 8 1/2"  | 10 3/8" | 10 1/2" | 13 5/8" | 15"     | 17 3/8" | 20 1/2" | 21 7/8" | 22 5/8" | 24 1/4" | 26 1/8" | 28"     | 39"  | 40 7/8" | 41 5/8" | 42 1/8" | 42 1/2" | 44 3/8" | 44 3/4" |      |
|            |     | mm   | 108    | 152    | 152    | 190    | 216     | 263     | 267     | 346     | 381     | 441     | 521     | 556     | 575     | 616     | 663     | 711     | 991  | 1038    | 1057    | 1070    | 1079    | 1127    | 1137    |      |
| Net weight | RF  | lbs. | 20     | 55     | 71     | 84     | 121     | 150     | 212     | 353     | 540     | 840     | 1124    | 1455    | 1874    | 2315    | 2646    | 3197    | 4960 | 5073    | 5183    | 6393    | 7385    | 13669   | 16755   |      |
|            |     | kg   | 9      | 25     | 32     | 38     | 55      | 68      | 96      | 160     | 245     | 381     | 510     | 660     | 850     | 1050    | 1200    | 1450    | 2250 | 2301    | 2351    | 2900    | 3350    | 6200    | 7600    |      |
|            | BW  | lbs. | 19     | 51     | 57     | 64     | 79      | 132     | 165     | 287     | 463     | 677     | 981     | 1318    | 1587    | 1874    | 2537    | 2866    | 4846 | 4943    | 5040    | 6206    | 7132    | 13338   | 16391   |      |
|            |     | kg   | 8.5    | 23     | 26     | 29     | 36      | 60      | 75      | 130     | 210     | 307     | 445     | 598     | 720     | 850     | 1151    | 1300    | 2198 | 2242    | 2286    | 2815    | 3235    | 6050    | 7435    |      |

### SWING CHECK VALVE CLASS 300

|            | NPS | inch | 1 1/2" | 2"      | 2 1/2"  | 3"      | 4"      | 5"      | 6"      | 8"      | 10"     | 12"     | 14"     | 16"     | 18"     | 20"     | 22"     | 24"     | 26"     | 28"     | 30"     | 32"     | 36"   | 40"     | 42"     |      |      |
|------------|-----|------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|---------|---------|------|------|
|            |     |      | DN     | mm      | 40      | 50      | 65      | 80      | 100     | 125     | 150     | 200     | 250     | 300     | 350     | 400     | 450     | 500     | 550     | 600     | 650     | 700     | 750   | 800     | 900     | 1000 | 1050 |
| Overall    | RF  | inch | 9 1/2" | 10 1/2" | 11 1/2" | 12 1/2" | 14"     | 15 3/4" | 17 1/2" | 21"     | 24 1/2" | 28"     | 33"     | 34"     | 38 1/2" | 40"     | 44"     | 53"     | 53"     | 59"     | 62 3/4" | 60"     | 82"   | 82"     | 82"     |      |      |
|            | BW  | mm   | 241    | 267     | 292     | 318     | 356     | 400     | 445     | 533     | 622     | 711     | 838     | 864     | 978     | 1016    | 1118    | 1346    | 1346    | 1499    | 1549    | 1524    | 2083  | 2083    | 2083    |      |      |
|            | RJ  | inch | 10"    | 11 1/8" | 12 1/8" | 13 1/8" | 14 5/8" | 16 3/8" | 18 1/8" | 21 5/8" | 25 1/8" | 28 5/8" | 33 5/8" | 34 5/8" | 39 1/8" | 40 3/8" | 44 7/8" | 53 7/8" | 54"     | 60"     | 63 3/4" |         |       |         |         |      |      |
|            |     | mm   | 254    | 283     | 308     | 333     | 371     | 416     | 460     | 549     | 638     | 727     | 854     | 879     | 994     | 1035    | 1140    | 1368    | 1372    | 1524    | 1619    |         |       |         |         |      |      |
|            | H   | inch | 4 1/4" | 5 3/8"  | 6 1/2"  | 8 1/2"  | 9 1/2"  | 10 1/2" | 11 1/2" | 15 1/4" | 16 1/2" | 17 5/8" | 21 1/4" | 24 3/8" | 25 1/4" | 26 1/8" | 28"     | 30"     | 40 1/2" | 41 3/8" | 42 1/8" | 42 5/8" | 43"   | 44 7/8" | 45 1/4" |      |      |
|            |     | mm   | 108    | 137     | 165     | 216     | 241     | 267     | 292     | 387     | 419     | 448     | 540     | 619     | 641     | 663     | 711     | 762     | 1029    | 1051    | 1070    | 1124    | 1092  | 1140    | 1150    |      |      |
| Net weight | RF  | lbs. | 31     | 77      | 82      | 132     | 181     | 207     | 342     | 591     | 838     | 1091    | 1565    | 2094    | 2646    | 2976    | 3252    | 4850    | 5291    | 7055    | 10196   | 11905   | 15873 | 18960   | 19334   |      |      |
|            |     | kg   | 14     | 35      | 37      | 60      | 82      | 94      | 155     | 268     | 380     | 495     | 710     | 950     | 1200    | 1350    | 1475    | 2200    | 2400    | 3200    | 4625    | 5400    | 7200  | 8600    | 8770    |      |      |
|            | BW  | lbs. | 26     | 62      | 35      | 99      | 139     | 201     | 265     | 406     | 728     | 847     | 1343    | 2271    | 2132    | 2535    | 2866    | 3307    | 5071    | 6724    | 9921    | 11177   | 14969 | 17505   | 17747   |      |      |
|            |     | kg   | 12     | 28      | 16      | 45      | 63      | 91      | 120     | 184     | 330     | 384     | 609     | 1030    | 967     | 1150    | 1300    | 1500    | 2300    | 3050    | 4500    | 5070    | 6790  | 7940    | 8050    |      |      |

## SWING CHECK VALVE CLASS 400

|            | NPS | inch | 2"      | 2 1/2"  | 3"      | 4"      | 5"      | 6"      | 8"      | 10"     | 12"     | 14"     | 16"     | 18"     | 20"     | 22"     | 24"     | 26"     | 28"     | 30"     | 32"   | 36"     | 40"     | 42"     |  |
|------------|-----|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|---------|---------|---------|--|
|            | DN  | mm   | 50      | 65      | 80      | 100     | 125     | 150     | 200     | 250     | 300     | 350     | 400     | 450     | 500     | 550     | 600     | 650     | 700     | 750     | 800   | 900     | 1000    | 1050    |  |
| Overall    | RF  | inch | 11 1/2" | 13"     | 14"     | 16"     | 18"     | 19 1/2" | 23 1/2" | 26 1/2" | 30"     | 35"     | 35 1/2" | 40"     | 41 1/2" | 45"     | 55"     | 55"     | 63"     | 65"     | 70"   | 82"     | 82 3/4" | 86 3/4" |  |
|            | BW  | mm   | 292     | 330     | 356     | 406     | 457     | 495     | 597     | 673     | 762     | 886     | 902     | 1016    | 1054    | 1143    | 1397    | 1397    | 1600    | 1651    | 1778  | 2083    | 2102    | 2203    |  |
|            | RJ  | inch | 11 5/8" | 13 1/8" | 14 1/8" | 16 1/8" | 18 1/8" | 19 5/8" | 23 5/8" | 26 5/8" | 30 1/8" | 35 1/8" | 35 5/8" | 40 1/8" | 41 3/4" | 45 3/8" | 55 3/8" | 55 1/2" | 63 1/2" | 65 1/2" |       |         |         |         |  |
|            |     | mm   | 295     | 333     | 359     | 410     | 460     | 498     | 600     | 676     | 765     | 892     | 905     | 1019    | 1060    | 1153    | 1407    | 1410    | 1613    | 1664    |       |         |         |         |  |
|            | H   | inch | 7 3/4"  | 8 3/8"  | 9"      | 11 1/8" | 12 3/4" | 14 1/4" | 16 1/2" | 19 1/2" | 23"     | 24 1/4" | 28"     | 31 5/8" | 37 5/8" | 40 1/8" | 42 7/8" | 47 3/8" | 52"     | 55 1/8" | 57"   | 60 1/8" | 62 1/8" |         |  |
|            |     | mm   | 197     | 213     | 229     | 283     | 324     | 362     | 419     | 495     | 584     | 616     | 711     | 803     | 956     | 1019    | 1089    | 1203    | 1321    | 1400    | 1400  | 1448    | 1527    | 1578    |  |
| Net weight | RF  | lbs. | 79      | 110     | 146     | 245     | 384     | 536     | 844     | 1340    | 1810    | 2187    | 2884    | 3770    | 3278    | 3940    | 4564    | 5754    | 7341    | 10196   | 11905 | 15873   | 18960   | 19400   |  |
|            |     | kg   | 36      | 50      | 66      | 111     | 174     | 243     | 383     | 608     | 821     | 992     | 1308    | 1710    | 1891    | 2295    | 2700    | 3195    | 3700    | 5781    | 6750  | 9000    | 10750   | 11000   |  |
|            | BW  | lbs. | 66      | 93      | 121     | 170     | 311     | 450     | 725     | 1190    | 1587    | 1753    | 2264    | 3373    | 3278    | 3940    | 4564    | 5754    | 7341    | 10196   | 11905 | 15873   | 18960   | 19400   |  |
|            |     | kg   | 30      | 42      | 55      | 77      | 141     | 204     | 329     | 540     | 720     | 795     | 1027    | 1530    | 1487    | 1787    | 2070    | 2610    | 3330    | 4625    | 5400  | 7200    | 8600    | 8800    |  |

## SWING CHECK VALVE CLASS 600

|            | NPS | inch | 2"      | 2 1/2"  | 3"      | 4"      | 5"      | 6"      | 8"      | 10"     | 12"     | 14"     | 16"     | 18"     | 20"     | 22"     | 24"     | 26"     | 28"     | 30"     | 32"     | 36"     | 40"     | 42"     |  |
|------------|-----|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|
|            | DN  | mm   | 50      | 65      | 80      | 100     | 125     | 150     | 200     | 250     | 300     | 350     | 400     | 450     | 500     | 550     | 600     | 650     | 700     | 750     | 800     | 900     | 1000    | 1050    |  |
| Overall    | RF  | inch | 11 1/2" | 13"     | 14"     | 17"     | 20"     | 22"     | 26"     | 31"     | 33"     | 35"     | 39"     | 43"     | 47"     | 51"     | 55"     | 57"     | 63"     | 65"     | 70"     | 82"     | 82 3/4" | 86 3/4" |  |
|            | BW  | mm   | 292     | 330     | 356     | 432     | 508     | 559     | 660     | 787     | 838     | 889     | 991     | 1092    | 1194    | 1295    | 1397    | 1448    | 1600    | 1651    | 1778    | 2083    | 2102    | 2203    |  |
|            | RJ  | inch | 11 5/8" | 13 1/8" | 14 1/8" | 17 1/8" | 20 1/8" | 22 1/8" | 26 1/8" | 31 1/8" | 33 1/8" | 35 1/8" | 39 1/8" | 43 1/8" | 47 1/4" | 51 3/8" | 53 3/8" | 57 1/2" | 63 1/2" | 65 1/2" | 70 5/8" | 83 1/8" |         |         |  |
|            |     | mm   | 295     | 333     | 359     | 435     | 511     | 562     | 664     | 791     | 841     | 892     | 994     | 1095    | 1200    | 1305    | 1407    | 1461    | 1613    | 1664    | 1794    | 2111    |         |         |  |
|            | H   | inch | 7 7/8"  | 8 1/2"  | 9 1/4"  | 11 3/8" | 13"     | 14 1/2" | 16 7/8" | 19 7/8" | 23 3/8" | 24 3/4" | 28 1/2" | 32 1/4" | 38 3/8" | 41"     | 43 3/4" | 48 3/8" | 53 1/8" | 56 1/4" | 56 1/4" | 58 1/4" | 61 3/8" | 63 3/8" |  |
|            |     | mm   | 200     | 216     | 235     | 290     | 330     | 368     | 429     | 505     | 594     | 629     | 724     | 819     | 975     | 1041    | 1111    | 1229    | 1349    | 1429    | 1429    | 1480    | 1559    | 1610    |  |
| Net weight | RF  | lbs. | 88      | 123     | 161     | 273     | 425     | 595     | 937     | 1488    | 2013    | 2429    | 3203    | 4189    | 4632    | 5622    | 6614    | 7826    | 9061    | 11023   | 12125   | 13779   | 14550   | 14749   |  |
|            |     | kg   | 40      | 56      | 73      | 124     | 193     | 270     | 425     | 675     | 913     | 1102    | 1453    | 1900    | 2101    | 2550    | 3000    | 3550    | 4110    | 5000    | 5500    | 6250    | 6600    | 6690    |  |
|            | BW  | lbs. | 73      | 104     | 134     | 190     | 346     | 500     | 807     | 1323    | 1764    | 1947    | 2515    | 3748    | 3642    | 4356    | 5071    | 6393    | 7729    | 9480    | 11684   | 13338   | 13999   | 14242   |  |
|            |     | kg   | 33      | 47      | 61      | 86      | 157     | 227     | 366     | 600     | 800     | 883     | 1141    | 1700    | 1652    | 1976    | 2300    | 2900    | 3506    | 4300    | 5300    | 6050    | 6350    | 6460    |  |

## SWING CHECK VALVE CLASS 900

|            | NPS | inch | 2"      | 2 1/2"  | 3"      | 4"      | 5"      | 6"      | 8"      | 10"     | 12"     | 14"     | 16"     | 18"     | 20"     | 22"     | 24"     |
|------------|-----|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|            | DN  | mm   | 50      | 65      | 80      | 100     | 125     | 150     | 200     | 250     | 300     | 350     | 400     | 450     | 500     | 550     | 600     |
| Overall    | RF  | inch | 14 1/2" | 16 1/2" | 15"     | 18"     | 22"     | 24"     | 29"     | 33"     | 38"     | 40 1/2" | 44 1/2" | 48"     | 52"     | 57"     | 61"     |
|            | BW  | mm   | 368     | 419     | 381     | 457     | 559     | 610     | 737     | 838     | 965     | 1029    | 1130    | 1219    | 1321    | 1448    | 1549    |
|            | RJ  | inch | 14 5/8" | 16 5/8" | 15 1/8" | 18 1/8" | 22 1/8" | 24 1/8" | 29 1/8" | 33 1/8" | 38 1/8" | 40 7/8" | 44 7/8" | 48 1/2" | 52 1/2" | 57 1/2" | 61 3/4" |
|            |     | mm   | 371     | 422     | 384     | 460     | 562     | 613     | 740     | 841     | 968     | 1038    | 1140    | 1232    | 1334    | 1460    | 1568    |
|            | H   | inch | 13 1/8" | 13 3/4" | 12 5/8" | 16"     | 17 3/8" | 18 7/8" | 22 1/4" | 26 1/8" | 30 1/2" | 28 7/8" | 33"     | 36 1/4" | 41 3/8" | 44 1/2" | 47 1/4" |
|            |     | mm   | 333     | 349     | 321     | 406     | 441     | 479     | 565     | 664     | 775     | 733     | 838     | 921     | 1051    | 1130    | 1200    |
| Net weight | RF  | lbs. | 154     | 243     | 243     | 441     | 639     | 838     | 1433    | 2535    | 3197    | 3858    | 5335    | 7165    | 8818    | 10803   | 12787   |
|            |     | kg   | 70      | 110     | 110     | 200     | 290     | 380     | 650     | 1150    | 1450    | 1750    | 2420    | 3250    | 4000    | 4900    | 5800    |
|            | BW  | lbs. | 110     | 192     | 187     | 353     | 507     | 661     | 1146    | 2094    | 2601    | 3197    | 4519    | 5952    | 7275    | 8598    | 9921    |
|            |     | kg   | 50      | 87      | 85      | 160     | 230     | 300     | 520     | 950     | 1180    | 1450    | 2050    | 2700    | 3300    | 3900    | 4500    |

## SWING CHECK VALVE CLASS 1500

|            | NPS | inch | 2"      | 2 1/2"  | 3"      | 4"      | 5"      | 6"      | 8"      | 10"     | 12"     | 14"     | 16"     | 18"     | 20"     | 22"     | 24"     |
|------------|-----|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|            | DN  | mm   | 50      | 65      | 80      | 100     | 125     | 150     | 200     | 250     | 300     | 350     | 400     | 450     | 500     | 550     | 600     |
| Overall    | RF  | inch | 14 1/2" | 16 1/2" | 18 1/2" | 21 1/2" | 26 1/2" | 27 3/4" | 32 3/4" | 39"     | 44 1/2" | 49 1/2" | 54 1/2" | 60 1/2" | 65 1/2" | 71"     | 76 1/2" |
|            | BW  | mm   | 368     | 419     | 470     | 546     | 673     | 705     | 832     | 991     | 1130    | 1257    | 1384    | 1537    | 1664    | 1803    | 1943    |
|            | RJ  | inch | 14 5/8" | 16 5/8" | 18 5/8" | 21 5/8" | 26 5/8" | 28"     | 33 1/8" | 39 3/8" | 45 1/8" | 50 1/4" | 55 3/8" | 61 3/8" | 66 3/8" | 71 7/8" | 77 5/8" |
|            |     | mm   | 371     | 422     | 473     | 549     | 676     | 711     | 841     | 1000    | 1146    | 1276    | 1407    | 1559    | 1686    | 1826    | 1972    |
|            | H   | inch | 13 1/8" | 13 3/4" | 15 3/8" | 16 1/2" | 18 3/8" | 20 1/8" | 26 3/4" | 29 3/4" | 33 3/4" | 39 5/8" | 42"     | 47 1/8" | 51 1/8" | 54 1/8" | 57 1/8" |
|            |     | mm   | 333     | 349     | 391     | 419     | 467     | 511     | 679     | 756     | 857     | 1007    | 1067    | 1197    | 1299    | 1375    | 1451    |
| Net weight | RF  | lbs. | 154     | 243     | 375     | 661     | 1096    | 1532    | 2535    | 4079    | 6063    | 7937    | 10803   | 14550   | 17967   | 21936   | 25904   |
|            |     | kg   | 70      | 110     | 170     | 300     | 497     | 695     | 1150    | 1850    | 2750    | 3600    | 4900    | 6600    | 8150    | 9950    | 11750   |
|            | BW  | lbs. | 110     | 192     | 298     | 540     | 886     | 1235    | 2127    | 3263    | 4806    | 6250    | 8598    | 11574   | 14220   | 17031   | 19841   |
|            |     | kg   | 50      | 87      | 135     | 245     | 402     | 560     | 965     | 1480    | 2180    | 2835    | 3900    | 5250    | 6450    | 7725    | 9000    |

## 4. MATERIALS

| No. | Name of Part     | ASTM SPECIFICATION         |                            |                             |                             |                             |                            |                            |                            |          |
|-----|------------------|----------------------------|----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|----------|
|     |                  | Standard                   | High Temperature           |                             |                             |                             | Low Temperature Service    |                            |                            |          |
|     |                  | -20°F 800°F<br>-29°C 427°C | -20°F 850°F<br>-29°C 455°C | -20°F 1000°F<br>-29°C 538°C | -20°F 1100°F<br>-29°C 594°C | -20°F 1100°F<br>-29°C 594°C | -50°F 650°F<br>-46°C 345°C | -50°F 700°F<br>-46°C 370°C | -75°F 650°F<br>-59°C 345°C |          |
| 1   | Body             | A216-WCB                   | A217-WC1                   | A217-WC6                    | A217-WC9                    | A217-C5                     | A352-LCB                   | A352-LCC                   | A352-LC1                   |          |
| 2   | Welded Seat Ring | A53-A/A573 gr. 65          | A691-CM-70/A204 gr. A      | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                    | A672-B65/A515 gr. 65       | A672-B65/A516 gr. 65       | A691-CM-70/A204 gr. B      |          |
| 3   | Disc             | Forged                     | A105                       | A182-F1                     | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                   | A350-LF2                   | A350-LF2                   | A182-F1  |
|     |                  | Casting                    | A216-WCB                   | A217-WC1                    | A217-WC6                    | A217-WC9                    | A217-C5                    | A352-LCB                   | A352-LCC                   | A352-LC1 |
| 4   | Hinge            | Forged                     | A105                       | A182-F1                     | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                   | A350-LF2                   | A350-LF2                   | A182-F1  |
|     |                  | Casting                    | A216-WCB                   | A217-WC1                    | A217-WC6                    | A217-WC9                    | A217-C5                    | A352-LCB                   | A352-LCC                   | A352-LC1 |
| 5   | Spacer           | A108 gr. 1025              | A182-F1                    | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                    | A350-LF2                   | A350-LF2                   | A182-F1                    |          |
| 6   | Disc Nut         | A108 gr. 1025              | A182-F1                    | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                    | A350-LF2                   | A350-LF2                   | A182-F1                    |          |
| 7   | Hinge Pin        | A182-F6a                   | A182-F6a                   | A182-F316                   | A182-F316                   | A182-F316                   | A182-F304                  | A182-F304                  | A182-F304                  |          |
| 8   | Ring of Distance | A182-F6a                   | A182-F6a                   | A182-F316                   | A182-F316                   | A182-F316                   | A182-F304                  | A182-F304                  | A182-F304                  |          |
| 9   | Bonnet           | Forged                     | A105                       | A182-F1                     | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                   | A350-LF2                   | A350-LF2                   | A182-F1  |
|     |                  | Casting                    | A216-WCB                   | A217-WC1                    | A217-WC6                    | A217-WC9                    | A217-C5                    | A352-LCB                   | A352-LCC                   | A352-LC1 |
| 10  | Bonnet Nuts      | A194-2H                    | A194-2H                    | A194-2H or A194-4           | A194-2H or A194-4           | A194-2H or A194-4           | A194-4                     | A194-4                     | A194-4                     |          |
| 11  | Bonnet Studs     | A193-B7                    | A193-B7                    | A193-2H or A193-B16         | A193-2H or A193-B16         | A193-2H or A193-B16         | A320-L7M                   | A320-L7M                   | A320-L7M                   |          |
| 12  | Threaded Plug    | A108 gr. 1035              | A182-F1                    | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                    | A350-LF2                   | A350-LF2                   | A182-F1                    |          |
| 13  | Cover            | A108 gr. 1025              | A182-F1                    | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                    | A350-LF2                   | A350-LF2                   | A182-F1                    |          |
| 14  | Bushing          | A439-D2c                   | A439-D2c                   | A439-D2c                    | A439-D2c                    | A439-D2c                    | A439-D2c                   | A439-D2c                   | A439-D2c                   |          |
| 15  | Packing Washer   | A108 gr. 1025              | A182-F1                    | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                    | A350-LF2                   | A350-LF2                   | A182-F1                    |          |
| 16  | Gland            | A108 gr. 1025              | A182-F1                    | A182-F11 CL. 2              | A182-F22 CL. 3              | A182-F5a                    | A350-LF2                   | A350-LF2                   | A182-F1                    |          |

## 5. BASIC TRIM MATERIALS

| No. | Name of Part                 |  |
|-----|------------------------------|--|
| 17a | Bonnet Gasket                | Plane gasket – graphite with metal filler                        |
| 17b |                              | Spiral wound gasket – stainless steel with graphite filler       |
| 17c |                              | Ring-Joint gasket – carbon steel or stainless steel, as required |
| 18a | Packing Plug & Packing Cover | Plane gasket – graphite with metal filler                        |
| 18b |                              | Spiral wound gasket – stainless steel with graphite filler       |
| 19a | Packing                      | Graphite with metal filler and corrosion inhibitor               |
| 19b |                              | Graphite with corrosion inhibitor                                |
| 20  | Gland Flange                 | A105/A573 Gr. 65   |
| 21a | Gland Nuts                   | A194-2H  |
| 21b | Cover Nuts                   | A194-2H  |
| 22a | Gland Lug Studs              | A193-B7  |
| 22b | Cover Studs                  | A193-B7  |
| 23  | Lever with weight            | Subassembly (Carbon Steel)                                       |
| 24  | Plate                        | Carbon Steel   |
| 25  | Cap Screw                    | A193-B7  |

| TRIM Number | Nominal TRIM | Material Type     | Seat Surface            | Hinge                   |
|-------------|--------------|-------------------|-------------------------|-------------------------|
|             |              |                   | Hardness [HB]           |                         |
| 1           | F6           | 13 Cr             | 250 min                 | 200 min-275 max         |
|             |              |                   | 300 min                 |                         |
| 2           | 304          | 18 Cr – 8 Ni      | Manufacturer's standard |                         |
| 5           | HF           | Co – Cr A         | 350 min                 | 200 min-275 max         |
| 5A          |              | Ni – Cr           |                         |                         |
| 8           | F6 / HF      | 13 Cr             | 250 min                 | 200 min-275 max         |
|             |              | Co – Cr A         | 350 min                 |                         |
| 8A          | F6 / HF      | 13 Cr             | 250 min                 |                         |
|             |              | Ni – Cr           | 350 min                 |                         |
| 10          | 316          | 18 Cr – 8 Ni - Mo | Manufacturer's standard |                         |
| 12          | 316 / HF     | 18 Cr – 8 Ni - Mo | Manufacturer's standard |                         |
|             |              | Co – Cr A         | 350 min                 | Manufacturer's standard |
| 12A         | 316 / HF     | 18 Cr – 8 Ni - Mo | Manufacturer's standard |                         |
|             |              | Ni - Cr           | 350 min                 | Manufacturer's standard |



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